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ABSTRACT

Three dimensions of school children's viewpoints on grades were examined in a developmental framework: (1) sentiment and attitudes about being graded, (2) causal perceptions and attributions about why students get good grades; and (3) comprehension of simple and complex grading systems. A total of 293 boys and girls drawn from fourth through eleventh grades responded to a theoretically derived questionnaire developed for the study. Findings supported a cognitive-developmental progression in the acquisition of grading concepts. Older and higher-achieving students understood grading constructs better than younger and lower-achieving students. Student attitudes about grades also followed a developmental course. Dissatisfaction and cynicism related to grading practices increased with age, as did ratings of the self-importance of grades. Attributional scores partially supported predictions from social-learning theory and research. Younger students and low achievers were more likely to attribute grades to external and uncontrollable factors, while high achievers and older students attributed grades to internal and controllable factors. Contrary to prediction, males made more external attributions and females made more internal attributions. Although effort attributions increased with age, ability attributions remained unchanged across grade levels. Findings are discussed in terms of cognitive-developmental and social-learning theory, implications for school practice, and future research. (Author/RH)

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A Developmental Study of Student Perceptions of School Grading

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Abstract

Three dimensions of school children's viewpoints on grades were examined in a developmental framework: (a) sentiment and attitudes about being graded, (b) causal perceptions and attributions about why students get good grades, and (c) comprehension of simple and complex grading systems. Subjects (N = 293) were students of both sexes from six grade levels (fourth through eleventh grade) who responded to a theoretically derived questionnaire (alpha = .70). Findings supported a cognitive-developmental progression in the acquisition of grading concepts. Older and higher-achieving students had a better grasp of grading constructs than did younger and low-achieving students. Student attitudes about grades also followed a developmental course. Dissatisfaction and cynicism with grading practices increased with age, as did ratings of the self-importance of grades. Attributional scores partially supported predictions from social-learning theory and research. Younger students and low achievers saw grades as more influenced by external and uncontrollable factors, while high achievers and older students endorsed internal and controllable factors. Contrary to prediction, males made more external attributions and females made more internal attributions. Although effort attributions increased with age, ability attributions remained unchanged across grade levels. Findings

are discussed from perspectives of cognitive-developmental and social-learning theory together with implications for school practice and future research.

A Developmental Study of Student Perceptions of School Grading

Introduction

Formal evaluation, represented by marking or grading students, is among the most salient experiences of school life; it has been characterized as "the basic currency of our educational system" (Deutsch, 1979). To illustrate, research involving a wide range of public school students has revealed that grades are identified as a major school problem area (Dellow, Ross, & James, 1980). This problem seems to increase as students move from elementary to secondary school (Adams, 1964), and may, for many students, be implicated in the general age-grade trend of decreasingly positive sentiment toward school in general (Epstein & McPartland, 1976). Despite the salience of grades as a persistent problem area for students, comparatively little research has been done on students' attitudes toward and understanding of grading. Rather, researchers have focused on teachers' attitudes and perspectives on grading (McGhee & Crandall, 1968; Rogers, 1982; Salvia, Algozzine, & Sheare, 1977), students' perceptions of teachers' attitudes toward grades (Raviv, Bar-Tal, Raviv, & Levit, 1983; Weiner & Kukla, 1970; Weiner & Peter, 1973), and the effects of contrasting grading

systems on pupil attitudes and achievement (Butterworth & Michael, 1975; Cross & Cross, 1980-81; Hicks, Edwards, & Egan, 1973).

The research that has attended to elementary and secondary students' perspectives on grades largely concerns their attitudes and expectations rather than their conceptualizations about grades. Cohen (1965) found that both expectations about future grades and attitudes toward school improved after report cards had been received. Baum (1969) assessed student preferences for grading formats and found that all students preferred teachers to be flexible; but high and low achievers differed in the evaluation format that they chose. Hull (1980) examined students judgments of fairness in grading and found that clear, consistent criteria were important, but teacher characteristics were not. Finally, Mitchell (1983) used a questionnaire to assess student attitudes toward grades and found that almost one-half of this sample was dissatisfied with their grades. Taken together, these studies comprise the bulk of research on elementary and secondary students' attitudes toward grades. While these findings are interesting, little progress has been made toward an integrated framework for research on students' attitudes toward grades.

A somewhat more cohesive group of studies about student perception of grades has emerged from attribution theory (e.g.,

Weiner, 1979). Attribution theory postulates that individuals assign and identify causal attributions both to explain their achievement successes and failures and to predict future performance (Weiner, 1983). Causal attributes relevant to classroom situations include luck, ability, effort, and task difficulty (Stipek & Weisz, 1981). These attributes are classified into three interlocking dimensions. The first dimension is the locus of causality. It differentiates internal from external causes and is similar to Rotter's construct of locus of control (Rotter, 1966). Ability, effort, and mood are internal causes as they are perceived to originate within the individual. In contrast, luck, task difficulty, and teacher bias are external causes, perceived to originate outside the individual. The second dimension, stability, differentiates causes on the basis of stable (invariant) versus unstable (changing) characteristics. Ability and aptitude are seen as stable and enduring characteristics; while effort, luck, and mood are seen as transient and therefore as unstable. Controllability is the third and most recently defined dimension. Causes are considered controllable if they are subject to a person's volitional regulation and management. Conversely, causes are uncontrollable if beyond a person's direct influence. Thus, aptitude and luck are defined as uncontrollable, while effort and

mood are seen as controllable (Weiner, Graham, Taylor, & Meyer, 1983). Using this taxonomy of dimensions, causal attributes are then classified and characterized. For instance, a student who believes that good grades are the result of studying hard would be relying on the causal attribute of effort, characterized by internal, unstable, and controllable dimensions. These dimensions are hypothesized to have important consequences for future achievement-related behavior, attitudes, and affects (Bar-Tal, 1982).

With attribution theory as a base, a few researchers have investigated causal attributes that students hold regarding grades. Findings are diverse. Mitchell (1979) reports that tenth, eleventh, and twelfth graders perceive grades to be determined by ability, luck, and being well-liked by the teacher, not by effort or task difficulty. Using an extensive list of nine causal attributes, Bar-Tal and Darom (1979) found successful grades were attributed to external factors and failing grades were attributed to internal factors. Using the same list of nine causal attributes, Raviv, Bar-Tal, Raviv, and Bar-Tal (1980) reported that both successful and failing grades were attributed to internal factors. Additional studies have focused on developmental changes in attributional patterns. Raviv et al. (1983) found that younger students endorsed effort, while older

students endorsed ability as causally important for getting good grades. By contrast, Powers and Wagner (1984) found that ability attributions in their middle and high school sample decreased with age. Other researchers have reported developmental changes in attributional patterns in response to succeeding or failing on experimental tasks, rather than in response to succeeding or failing on report cards (Kun, 1977; Kun, Parsons, & Ruble, 1974; Nicholls, 1978, 1979; Weiner & Peter, 1973). Their findings are similar to those of Raviv et al. (1983) in showing age-related changes in effort and ability ascriptions. These various patterns suggest that attitudes and attributions about grades should be examined within a developmental framework.

In view of findings that attributional patterns change over time, some researchers have attempted to ascertain if there is enough consistency within a limited time span and for a particular individual to warrant study of these attributional patterns. Bar-Tal, Raviv, Raviv, and Bar-Tal (1982) found consistency in the attributional patterns of sixth graders responding to grades received on papers from similar and dissimilar subjects. Persley (1975), in a study of feedback effects on students' causal attributions for grades, found that causal explanations were not affected by feedback. These findings suggest some consistency in attribution patterns, at

least given a limited time period. Accordingly, fuller consideration of attributional patterns may enhance our understanding of factors that influence student attributes toward grades.

While studies on student attitudes and attributions regarding grading are not common, research on student conceptualizations of grades is less so. A pertinent framework for such research is provided by Piagetian principles of cognitive development. For example, research on "decentering" in preadolescent and adolescent children has shown a progression in which younger children are only able to attend to two dimensions, while older children are able to attend to and manipulate a number of dimensions in a problem-solving situation (Inhelder & Piaget, 1958). Further, the older adolescent who has reached the level of formal operations manipulates dimensions mentally without the need for concrete objects (McKinney, Fitzgerald, & Strommer, 1977). This increasingly adequate decentering ability suggests that older adolescents should be better able to conceptualize and calculate grades derived from a variety of criteria. Research on egocentric thought in children also suggests that younger and older adolescents will conceptualize grades differently. For instance, Elkind's (1966) study of hypothesis formulation and testing among eight- and nine-year-olds, as compared to thirteen-

and fourteen-year-olds, shows that older adolescents were able to hypothesize and then test their hypotheses for compliance with reality. In contrast, the younger children distorted reality to match their hypotheses. The ability to change hypotheses when confronted by conflicting data suggests that the older adolescent would see grades as more relative and changeable, while the younger adolescent may accept grades as absolute and immutable. In sum, research on Piagetian principles of cognitive development suggests that conceptualizations of grades should progress as students proceed from concrete operational thought to formal operational thought (Elkind, 1976).

Finally, an examination of students' attitudes and understanding of grades calls into play several additional findings common to the literature in educational psychology. First, significant sex differences appear in a number of attitude and attribution studies (Bar-Tal, 1978; Bar-Tal & Darom, 1979; Bar-Tal & Freize, 1977; Callaghan & Manstead, 1983; Nicholls, 1975, 1978). The majority of these studies reports a tendency for females to be more "external" in their attributions and to make more luck attributions than do males; they also report that females do not rate their ability as high as do males. Because of these findings, it seems appropriate to accommodate gender in a developmental study of grading precepts.

Second, a student's past achievement level seems reliably linked to different responses in attitude and attribution research. Specifically, Butterworth and Michael (1975), Covington and Beery (1976), Covington and Omelich (1979), Forsyth and McMillan (1981), Hicks et al. (1973), and Johnson and Yarborough (1978) have all found that high- and low-achieving students held different attitudes and attributions toward school. Thus, a thoroughgoing analysis of the school grading issue will incorporate this student variable as well.

In summary, research on student perspective of grading is limited. Findings to date suggest that student attitudes and understanding change over time, vary according to sex and achievement levels, reflect levels of cognitive development, and are closely related to systems of causal attribution. However, the specific content of these attitudes and understanding remains unclear--i.e., little is known about what students think, feel, and understand about the grades they receive from teachers. The purpose of this study is to explore, within a developmental framework, the thoughts, feelings, and understandings that students have about grades.

Hypotheses

From existing research and theory, several hypotheses were generated. Specifically, we anticipated that age-level differences would occur for all three dimensions of grading practices--attitudes, attributions, and conceptualizations. We expected older students, more than younger students, to be less positive about and more concerned with grades. Older students were thought to emphasize ability more than effort attribution, to have a better grasp of grading constructs, and to see grades as relative and changeable, in contrast to the perceptions of younger children. Achievement-level differences were expected for all three dimensions as well. We hypothesized that higher-achieving students would show more positive attitudes toward grades, make attributions that indicate internality and controllability, and have better understanding of grading constructs than would lower-achieving students. Finally, gender differences were expected only in the area of attribution. We hypothesized that, when accounting for getting good grades, females would make external attributions while males would endorse internal attributions.

Method

Sample

Subjects of both sexes participated in this study, representing six grade levels. The total sample size was 293 (M = 133; F = 159). Sample sizes by grade level were: 4th (N = 52), 6th (N = 48), 7th (N = 59), 8th (N = 47), 9th (N = 47), 11th (N = 40). These grade level samples were drawn from four schools (two intermediate, one junior high, and one senior high) in the same subdivision of a large, suburban school district in Washington State, which serves a predominantly white, middle-class population.

Questionnaire

Using a cognitive-developmental and social-learning theory framework, the investigators developed an 88-item questionnaire to assess three aspects of student perspectives on grades--attitudes, attributions, and cognitive understandings. A Likert scale format was used for the majority of questions, with endorsements ranging from low (1) to high (4). In an attempt to avoid biasing response sets, questions about both personal experiences and hypothetical situations were asked. Attitude questions focused on whether students liked or disliked grades, saw grades as fair or unfair, and associated punishing or rewarding consequences with grading. Additional attitude items

focused upon the importance that students themselves attach to grades, as compared to the importance that parents, friends, and teachers assign to grades. Attribution questions centered on factors identified in the research as important causal agents in achievement contexts (Weiner, 1979)--e.g., effort, ability, task characteristics, teacher characteristics, luck, learning, and interest. These agents were grouped according to three attributional dimensions: internal/external, controllable/uncontrollable, and stable/unstable. Finally, questions assessing students' cognitive understandings of grading systems encompassed ranking and ordering of grading scales, defining and applying grading systems like GPA's, curved grading, and weighted grading. An "I Don't Know" category was included in this cognitive section in an attempt to clarify the interpretation of unanswered questions.

Cronbach's alpha was calculated on the three dimensions measured by the questionnaire (total sample). Reliabilities were .74 for the Attitude scale, .70 for the Attribution scale, and .72 for the Concept Development scale.

The questionnaire was administered in spring 1984 under standard conditions in the classrooms, where teachers were present but were uninvolved in the data-collection process. Subjects were guaranteed confidentiality of results to dispell

any possible anxiety about their teachers having access to individual protocols. Administration time ranged from 30 to 60 minutes, depending on the grade level of the subjects. Questionnaires were read aloud to the younger students (fourth, sixth, and seventh graders), and questions were encouraged and accepted at any time in all sessions.

Results were analyzed for relationships, using correlational procedures, and for differences between groups, using ANOVA. The ANOVA involved a 2(gender) x 2(achievement level: high, low) x 6 (grade levels: 4, 6, 7, 8, 9, 11) way factorial analysis of variance. Scores on attitude subscales, attribution subscales, and conceptual understanding subscales constituted the dependent measures. Gender, grade level, and achievement level comprised the independent measures. Achievement level was dichotomized into high and low, using a median split technique. Teacher ratings of achievement served as criteria for the median split for fourth-and sixth-grade samples; cumulative grade point average was the median split criterion for junior and senior high students. Questionnaire data were factor analyzed to estimate the content validity of all scales and subscales.[1]

It should be understood that this is a preliminary study. There are several methodological problems. While attempts were made to develop an instrument that was valid (e.g., factor

analytic procedures were used to check on content validity), several items and scales posed interpretation difficulties, indicating limitations on the questionnaire itself. It is therefore necessary to view the results as tentative. In addition, while ANOVA is not strictly appropriate for non-random, non-experimental design, the large sample size and fairly even distribution of males and females permitted its use without doing major harm to basic assumptions. Moreover, ANOVA, in conjunction with the correlational analysis, can provide additional useful information upon which to base further research.

Results and Discussion

Results are reported in the following order: (a) age effects, (b) achievement effects, (c) gender effects, and (d) interactions. Tables 1 and 2 present the analysis of age effects, Tables 3 and 4 present the analysis of achievement effects, and Tables 5 and 6 present the analyses of gender effects. These tables contain means, ranges, correlations, and F values for scales on which significant differences were found.

Insert Tables 1 and 2 about here

Age Effects

Tables 1 and 2 present age effect data. Significant age-level effects were found on 17 scales: 4 scales for attitude, 6 for attributions, and 7 for concept development. In the attitude domain, younger students, more often than older students, reported that teachers graded fairly (Fairness of Grades, $r = -.19$), and used grades both to reward students for good work (Grades as Rewards, $r = -.21$) and to punish them for bad work (Grades as Punishments, $r = -.17$). At the same time, younger students (fourth, sixth, and eighth graders) attached less importance to the grades they received than did older students (ninth graders). For attribution, older students endorsed internal, controllable factors, while younger students endorsed external, uncontrollable factors as important influences on the grading process. Specifically, older students were more likely to report that trying hard in school (Effort, $r = .32$) and learning the work (Learning, $r = .27$) influenced one's chances for getting good grades; younger students were more likely to report that having good luck (Luck, $r = .31$) was important. In contrast to older students, younger students also preferred to be graded in classes like Physical Education on the basis of how good they were at the activity, rather than on how hard they tried (Grading in Non-Academic Classes, $r = .29$).

Finally, predicted age effects were found on the majority of scales measuring conceptual understanding of grades (Cognitive Understandings: Composite, Problem Applications, Curve Grading, Weighted Grading, Grade Point Average, Grades as Changeable). While older students knew more about grading practices than did younger students (Cognitive Understandings: Composite, $r = .51$), they also show substantial gaps in their mastery of grading constructs. Younger students were consistently more likely to respond that they did not know the answers to questions about grading systems than were older students ("Don't Know," $r = -.69$).

Overall, these age effect data lend partial support to our research hypotheses. In line with expectations and consistent with work by Epstein and McPartland (1978), the data reflect age-related change. Older subjects were simultaneously less accepting, more critical, and more concerned about grades than were the younger subjects--a pattern that also fits in with data from Adams (1964), Dellow et al. (1980), and Mitchell (1983). However, this consistent age trend did not hold for students perceptions of the importance attached to grades by their parents, friends, and teachers. In short, no age differentiation on this variable was observed; instead, the importance that grades have for significant others was uniformly consistent (and

higher for parents) across all age groups. Reasons for this are speculative. Barring measurement artifact, however, the apparent discrepancy between the importance children themselves attach to grades and the importance they think others place on grades suggests a subtle socialization effect. That is, given the press of schooling, children may early learn to give lip service to grades, based upon exhortation, admonition, and injunctions from parents and teachers. If so, grades may be viewed as "critical" in the abstract--i.e., other people say they are important. But only with increased experience and cognitive development may children gradually internalize this meaning and begin to appreciate the role of grades in their lives. This interpretation may hold in particular for middle-class or upwardly mobile school-community populations, although further research is needed to clarify this point.

Perhaps more intriguing is that our data are not consistent with the age effects in attributional patterns predicted by prior research. Previous findings that ability attributions increased and effort attributions decreased with age (Kun et al., 1974; Nicholls, 1978; Raviv et al., 1983; Weiner & Peter, 1973) contrasted with our findings that older students, more often than younger students, significantly endorsed effort attributions. Our finding resembles the Powers and Wagner (1984) findings that

ability attributions for success decreased with age in middle and senior high school students. Even so, these investigators did not find that effort attributions varied across grade levels.

The discrepancy in results between this and previous work may be accounted for by differences in samples and experimental designs. First, this study used students from the fourth to the eleventh grades; the majority of other studies used students under thirteen years old (Kun et al., 1974; Nicholls, 1978; Weiner & Peter, 1973). Our extended age range enables a more comprehensive look at nuances in developmental changes that may be influenced by school factors, e.g., greater emphasis in upper grades upon homework that requires effort or persistence. Second, most of these studies have looked at attributions for success and failure on experimental tasks and assignments specially designed for the research. This study, like the Power and Wagner (1984) study, the results of which are similar to ours, used a questionnaire to query students about grades, using a naturalistic, non-experimental format. Both the format and setting for data collection may activate a different set of experiences and expectations in respondents. In time, these differences may influence patterns of attributional endorsements. Further, as Weiner (1979) and Raviv et al. (1983) suggest, it may be that effort (vs. ability) attributions are more functional and

socially acceptable in the classroom setting. If so, effort attributions would more likely surface in response to questions about classroom evaluation. Clearly, further research is needed to clarify these issues about developmental patterns in effort and ability attributions.

Finally, our developmental hypothesis about growth in understanding of grading systems was upheld, with one notable deviation. While older students showed generally greater comprehension of grading systems than did younger students, ninth graders performed somewhat better than eleventh graders. This difference may have resulted from our sampling design (non-random groups). But it is possible that ninth graders, freshly operating in high school settings, may have received instruction in the grading systems that are to be used in their schools, and may be more motivated to understand how they will be graded. In short, this finding may suggest that other variables, like instruction and motivation, interact with age and cognitive maturity to influence student understanding of grading systems. Our expectation that older students would see grades as relative and changeable was also supported. This finding is in agreement with Piagetian principles suggesting that older children, in transition to formal operations, may be more flexible in their approach to facts and reality. Specifically, older students may

be better able, because of the combinatorial analytic skills, to consider possibilities (i.e., "What can I do about this low grade?") along with realities (i.e, "This is a low grade") (Flavell, 1963).

Insert Tables 3 and 4 about here

Achievement Effects

Achievement effects reported in Tables 3 and 4 were found on eleven scales. High achievers reported liking grades (Likes Grades, r = .23), saw grades as fair (Fairness of Grades, r = .20) and felt that grades were important for getting good jobs in the future (Job Importance of Grades, F = 3.95) significantly more than did low achievers (Attitude Composite Score, r = .18). These relationships between achievement and attitude measures were particularly significant in students in the junior and senior high grades (Likes Grades, r = .37; Fairness of Grades, r = .30; Attitude Composite Scale, r = .35). Low achievers tended to believe that grades were influenced by external characteristics of the school situation (External Causes: Composite, r = .15; Teacher Factors, F = 3.81) and scored significantly lower on measures assessing their understanding of grading constructs (Cognitive Understanding: Composite, r = .21; Curved Grading, r = .20; Weighted Grading, r = .16).

Thus, our hypotheses about achievement differences were supported. As expected, high-achieving students generally liked getting grades (Butterworth & Michael, 1975; Hicks et al., 1973; Johnson & Yarborough, 1978; Yarborough & Johnson, 1980), evaluated the grading process positively, and knew more about grading schemes than did lower-achieving students. Moreover, our findings that lower-achieving students made more attributions for getting successful grades to external, uncontrollable factors like luck, easy work, and nice teachers are similar to those of McGhee and Crandall (1968). The origins and implications of this kind of attributional pattern have been the focus of a number of studies (Covington & Beery, 1976; Covington & Omelich, 1979; Forsyth & MacMillan, 1981; Nicholls, 1983). Together, these studies indicate that such attributional patterns may serve a defensive, self-protective function under failure conditions--a situation that is more characteristic of lower-achieving students. At the same time, however, these attributional patterns may inhibit achievement-related behavior by reducing expectations for future success. In other words, if low-achieving students believe that there is nothing they do, or can do, to influence the marks they receive, then it is unlikely that they will do anything to change their grades. Work with reattribution training may be particularly applicable here

(Dweck, 1973; Schunk, 1983) by helping to enhance lower-achieving students' motivation to achieve and pursue achievement behavior. While more evidence is needed to support the hypotheses that low-achieving students do make consistently external, uncontrollable attributions, this strikes us as a fruitful area for further research.

Insert Tables 5 and 6 about here

Gender Effects

Gender effects were found only on attribution measures, the results of which appear in Table 5 and Table 6. Females, significantly more often than males, reported that internal characteristics of the learner were important for getting good grades (Internal Causes: Composite, $F = 3.98$; Effort, $F = 5.52$; Grading in Non-Academic Classes, $F = 4.75$). Males, significantly more often than females, endorsed factors external to the learner (External Causes: Composite, $F = 5.07$; Teacher Factors, $F = 6.35$). This pattern of gender differences held consistently with one exception--males, significantly more than females, endorsed the internal characteristic of being interested in a subject as important for getting good grades (Interest, $F = 5.22$).

These findings are in direct conflict with much of the attributional research on gender differences (Bar-Tal, 1978; Bar-Tal & Darom, 1979; Bar-Tal & Frieze, 1977; Nicholls, 1975, 1978). The incongruence between this study and previous research could be due to differences in experimental design (task evaluation vs. grade evaluation) as discussed above, but could also reflect variability in the attributional process itself.

As Callaghan and Manstead (1983) indicate from their study of gender differences in attributions, the attributional process is affected by the conditions under which the attributions are made, i.e., the environment surrounding individuals both historically and currently. Because some studies have failed to show gender differences at all (Powers & Wagner, 1984; Raviv et al., 1980; Raviv et al., 1983; Bar-Tal, Goldberg, & Knaani, 1984), it is possible that gender effects, more than age or achievement, are elusive and highly subject to conditions and circumstances (e.g., presence or absence of sexual stereotypes) that alter attributional patterns. Following this argument, Brophy and Good (1974) have suggested that school role expectations are generally considered as feminine in the traditional sense. If so, boys may experience a conflict between school role and sex role identities which girls do not. This conflict may result in decreased ego-involvement in school and an accompanying change in

attributional patterns--i.e., from attributing success to external rather than internal factors (Rosenfield & Stephan, 1978). Similarly, because school work may be seen as sex-appropriate for girls, they may be more likely to be ego-involved and to make internal attributions for success (Mark, 1983).

Interactions

Three interaction effects were found on two scales, "Task Characteristics" and "Changeability." A significant grade x gender interaction was found for the "Task Characteristics" scale, measuring the relationship between getting good grades and having easy work. In the younger grades (4th, 6th), females endorsed task ease more strongly than did males. This pattern was reversed for junior and senior high school students (7th, 8th, 9th, 11th). On the "Changeability" scale, measuring students' beliefs that grades can be altered and modified, both achievement x grade and gender x grade interactions were found. High achievers in the 4th, 7th, and 9th grades endorsed changeability of grades significantly more than did low achievers in these grades. But again, a reverse pattern was observed for the 6th, 8th, and 11th grades, wherein low achievers endorsed changeability. Finally, females, significantly more than males, endorsed changeability in the 4th, 7th, and 11th grades; while

males, significantly more than females, endorsed changeability in the 6th, 8th, and 9th grades.

These interactions defy ready explanation in terms of coherent theory and past research. Replication of the study is necessary to assess reliability of these patterns. It is our hunch, however, that individual teachers may relate somewhat differently to male and female students in the context of evaluation. This differential responsiveness (Brophy & Good, 1974; Mark, 1983) may influence, rather unpredictably, student assessment of their personal impact on the grading process.

Conclusions

These findings reveal a number of concerns for classroom teachers. Most notable is a general lack of understanding about grades, which holds consistently for males and females, older and younger students, and high- and low-achieving students. This finding suggests that grading practices may not be systematically well taught or consistently used across classes and grades; thus students may be unable to understanding the derivation, meaning, and consequences of the grades they receive. This finding also suggests that much of what students do know about grades may be what they have learned incidentally or informally from other students, older siblings, and friends. It is noteworthy that, while students generally professed to "know about" the grades

they received, they were not able to answer correctly many of the questions about grading standards and grading scales. Perhaps more direct instruction about grading systems is warranted even in the older grades. It would be especially important for any classroom instruction system based uon mastery learning constructs (e.g., Block & Anderson, 1975). This is also important if grades are used more for communicating with and motivating students than for simply comparing, evaluating, and sorting them. Perhaps more explicit attention to grading rationales can also attenuate the increasing tendency for many students to perceive grades as arbitrary and often as unfair.

Another trouble spot is suggested by findings from lower-achieving students' attributional scores. The belief apparently shared among lower-achieving students that getting good grades is something beyond their control or influence, is discouraging from both the student's and the teacher's perspective. That is, if lower-achieving students believe that nothing they can do will improve their grades, then it is unlikely that they will work at doing better. If, however, teachers can specify clearly that grades are determined by objective criteria, then perhaps students' sense of efficacy will be enhanced and they will be more likely to achieve in the school setting.

Finally, the diversity of findings concerning students' attitudes, attributions, and understandings about grades focuses our attention on the highly personal and individual meaning that grades may have. Although certain similarities exist in students' perspectives on grades and certain teacher practices may enhance this perspective, it is crucial to remember that each student interprets grades and report cards in light of individual needs, fears, motivations, and understandings. Responsive teachers must be flexible enough to adjust and adapt their use of grades to facilitate learning and meet the needs of individual students, while simultaneously complying with institutional policies for student evaluation.

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Footnotes

1. Results of the factor analysis are available upon request from the authors. These results generally substantiated the conceptual dimension of the major scales (attitude, attribution, and concept development), thus providing confidence in the construct integrity of the theoretical framework for this study.

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Table 1

Means and Ranges for Scales with Significant Age Effects

Scales	Range	Grade 4	6	7	8	9	11
Attitude scales							
Fairness of grades	2/12	8.94	8.73	8.66	8.04	8.36	7.85
Grades as rewards	3/12	10.02	10.19	9.68	9.33	9.41	8.82
Grades as punishments	5/20	14.54	13.6	14.12	13.6	13.4	12.7
Grades as important to students	3/12	9.76	9.95	10.16	9.7	10.85	10.22
Attribution scales							
Effort	10/36	29.06	28.38	29.80	29.76	30.79	32.07
Grading in nonacademic classes	7/24	16.25	16.67	17.28	17.13	18.00	19.00
Luck	2/8	5.58	4.54	4.29	4.24	3.83	3.70
Learning	8/24	20.82	20.71	21.75	21.15	22.11	22.90

Continued.....

Table 1 (continued)

Scales	Range	Grade 4	6	7	8	9	11
External causes: composite	24/60	40.23	36.87	37.1	37.48	35.81	37.70
Internal causes: composite	50/95	77.41	76.57	78.81	77.33	79.28	81.17
Conceptual scales							
Don't know	0/54	36.42	33.37	16.83	14.16	5.85	5.67
Cognitive understandings: composite	3/15	8.52	8.93	10.16	9.74	12.3	11.45
Problem applications	0/2	1.85	1.72	1.83	1.85	2.00	2.00
Curved grading	1/8	2.5	5.0	3.97	4.14	5.54	5.05
Weighted grading	1/5	4.06	3.61	3.94	3.84	4.27	4.14
GPA	0/2	.27	.34	.29	.34	.74	.50
Grades as changeable	5/20	12.29	13.89	15.59	14.81	15.32	15.57

Table 2

F-Values and Correlations for Significant Age Effects

Scale	Pearson Correlations $P \leq .005$	F-Value from ANOVA $P \leq .05$
Attitude scales		
Fairness of grades	-.19	2.57
Grades as rewards	-.21	2.91
Grades as punishments	-.17	2.22
Grades as important to students	(-.12) (p = .03)	2.76
Attribution scales		
Effort	.32	8.01
Grading in non-academic classes	.29	5.42
Luck	-.31	7.27
Learning	.27	2.71
External causes: composite	(-.15) (p = .007)	3.59
Internal causes: composite	.16	2.28

Continued.....

Table 2 (Continued)

Scale	Pearson Correlations $P \leq .005$	F-Value from ANOVA $P \leq .05$
Conceptual scales		
Don't know	-.69	63.03
Cognitive understandings: composite	.52	36.15
Problem applications	.15	2.82
Curved grading	.25	6.65
Weighted grading	.27	2.94
GPA	.20	5.98
Grades as changeable	.41	18.67

Table 3

Means and Ranges for Scales with Significant Achievement Effects

Scales	Range	High ach.	Low ach.
Attitude scales			
Likes grades	2/32	22.18	19.02
Fairness of grades	2/12	8.78	8.07
Job importance of grades	0/4	3.37	3.13
Attitude Scale: composite	26/87	66.64	62.44
Attribution Scales			
Teacher factors	18/48	29.00	30.14
External Causes: composite	24/60	36.79	38.50
Conceptual scales			
Cognitive understandings: composite	3/16	10.54	9.63
Ranking	0/4	2.59	2.42
Problems applications	0/2	1.92	1.80
Weighted grading	1/5	4.13	3.82
Curved grading	0/8	5.05	4.37

Table 4

F-Values and Correlations for Significant Achievement Effects

Scale	Pearson Correlations $P \leq .005$	F-Value from ANOVA $P \leq .05$
Attitude scales		
Likes grades	.23	16.00
Fairness of grades	.20	11.18
Job importance of grades		3.95
Attitude scale: composite	.18	8.94
Attribution scales		
Teacher factors		3.81
External causes: composite	.15	5.99
Conceptual scales		
Cognitive understanding: composite	.21	28.64
Ranking		9.36
Problems applying grading systems		6.37
Curved grading	.20	6.70
Weighted grading	.16	8.61

Table 5

Means and Ranges for Scales with Significant Gender Effects

Scale	Range	Female	Male
Attribution scales			
Effort	10/36	30.42	29.41
Grading in non-academic classes	7/24	17.73	16.86
Teacher factors	18/48	28.93	30.21
Interest	1/8	5.16	5.50
External causes: composite	24/60	36.88	38.38
Internal causes: composite	50/95	79.39	77.17

Table 6

F-Values for Significant Gender Effects

Scale	F-Value from ANOVA $P \leq .05$
Attitude scales	
Effort	5.52
Grading in nonacademic classes	4.73
Teacher factors	6.35
Interest	5.23
Internal causes: composite	4.86
External causes: composite	5.08